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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Stefan Dyckerhoff

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EXAMINER

MIRZA, ADNAN M

ART UNIT

PAPER NUMBER

2145

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DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

09/991,109

Applicant(s)

DYCKERHOFF ET AL.

Examiner

Adnan M. Mirza

Art Unit

2145

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 31 August 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-61 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-61 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>08/31/2007</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims 1-61 are rejected under 35 U.S.C. 102(e) as being unpatentable by Zhang et al (U.S. 6,795,506).

As per claims 1,21,40,48,57 Zhang disclosed a system, comprising: a memory configured to store data associated with a plurality of incoming streams of different speeds (col. 29, lines 49-57); an interface controller comprising a first arbitration element to arbitrate among the streams to store the data in the memory, the first arbitration element including a number of first entries, one of the first entries indicating which of the streams is to be serviced in a particular first time slot, the streams being assigned to the first entries based on the speeds of the streams (col. 5, lines 51-67); and a dispatch unit comprising a second arbitration element to arbitrate among the streams and configured to read the data from the memory using the second arbitration element (col. 21, lines 52-67). The second arbitration element including a number of second entries, one of the second entries indicating which of the streams is to be services in a particular second time slot, the streams being assigned to the second entries based on the speeds of the streams (col 27, lines 39-54).

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3. As per claims 2,22 Zhang disclosed wherein the memory includes: a plurality of memory buckets corresponding to the streams (col. 28, lines 65-67 & col. 29, lines 1-3).

4. As per claims 3 Zhang disclosed wherein the memory buckets have a fixed size (col. 28, lines 65-67 & col. 29, lines 1-3).

5. As per claims 4,23 Zhang disclosed wherein the first arbitration element is configured to store a plurality of entries, each of the entries including a stream number that identifies one of the streams (col. 21, lines 52-67).

6. As per claims 5,24 Zhang disclosed wherein the number of the first entries in the first arbitration element is programmable (col. 21, lines 52-67).

7. As per claims 6 Zhang disclosed wherein the interface controller is configured to: read one of the stream numbers from the first arbitration element, providing a list of potential proxy candidates; providing a search mechanism to add more candidates to said list of potential proxy candidates; and receiving a selection of one or more of said potential proxy candidates, including a selection of said first entity (col. 21, lines 52-67).

8. As per claims 7,26 Zhang disclosed wherein the interface controller is further configured to send a stream identifier with the data transferred to the memory (col. 21, lines 45-51).

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9. As per claims 8,27 Zhang disclosed wherein the memory is further configured to sort the data from the interface controller based on the stream identifier (col. 21, lines 33-43).
10. As per claims 9,28 Zhang disclosed wherein the first and second arbitration elements are synchronized (col. 19, lines 41-54).
11. As per claims 10,29 Zhang disclosed each of the second entries including a stream number that identifies one of the streams (col. 21, lines 52-67).
12. As per claims 11,30 Zhang disclosed wherein the number of second entries in the second arbitration element is programmable (col. 21, lines 52-67).
13. As per claims 12,31 Zhang disclosed wherein the dispatch unit is configured to: read one of the stream numbers from the second arbitration element, read data corresponding to the identified stream from the memory, and output the data for processing (col. 21, lines 52-67).
14. As per claims 13,32 Zhang disclosed further comprising: flow control logic configured to initiate flow control on the storing of data in the memory (col. 21, lines 52-67).
15. As per claims 14,36,42,50 Zhang disclosed wherein the flow control includes dropping data from the stream (col. 21, lines 52-67).

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16. As per claims 15,37,43,51 Zhang disclosed wherein the flow control includes causing the interface controller to stop storing data from the stream in the memory (col. 21, lines 45-51).

17. As per claims 16,33,47 Zhang disclosed wherein the flow control logic includes: a buffer configured to temporarily store the data from the interface controller in a plurality of entries, a counter configured to determine a number of entries in the buffer corresponding to each of the streams (col. 29, lines 49-57), and comparator configured to determine whether to initiate the flow control for each of the streams based on the determined number of entries for the stream (col. 21, lines 52-67).

18. As per claims 17,34,41,49 Zhang disclosed wherein the comparator is configured to compare the determined number of entries for a stream to a watermark and initiate the flow control for the stream when the determined number of entries exceeds the watermark (col. 29, lines 49-57).

19. As per claims 18,35,44,52 Zhang disclosed wherein the comparator is further configured to compare the determined number of entries for the stream to a second watermark and drop data from the stream when the determined number of entries exceeds the second watermark (col. 29, lines 49-57).

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20. As per claims 19,38,45 Zhang disclosed wherein each of the streams has an associated watermark for performing flow control on the storing of data in the memory (col. 21, lines 45-51).

21. As per claims 20,39,46 Zhang disclosed wherein each of the streams has two associated watermarks for use in performing flow control on the storing of data in the memory (col. 21, lines 45-51).

22. As per claim 25 Zhang disclosed wherein the storing includes: reading one of the stream numbers from the first arbitration element, gathering data corresponding to the identified stream, and transferring the data to the memory (col. 21, lines 52-67).

23. As per claims 55,56 Zhang disclosed a system for performing flow control on data in a plurality of incoming streams of variable speeds, comprising: a buffer configured to temporarily store data from a plurality of streams of variable speeds in a plurality of entries (col. 21, lines 45-51); a counter configured to determine a number of entries in the buffer corresponding to each of the streams (col. 21, lines 45-51); and a comparator configured to: compare the determined number of entries for a stream to first and second watermarks, initiate flow control for the stream when the determined number of entries exceeds the first watermark, and drop data from the stream when the determined number of entries exceeds the second watermark (col. 10, lines 19-32).

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24. As per claims 58,60 Zhang disclosed wherein the first arbitration element is configured to arbitrate among the streams of variable speeds to store the data in the memory based on speeds of the streams and the second arbitration element is configured to arbitrate among the streams of variable speeds to read the data from the memory based on the speeds of the streams (col. 20, lines 40-48).

25. As per claims 59,61 Zhang disclosed wherein at least one of the arbitration element or the second arbitration element is configured to be reprogrammed based on an input regarding a speed of at least one of the streams (col. 28, lines 6-19).

### ***Response to Arguments***

Applicant's arguments filed 08/31/2007 have been fully considered but they are not persuasive.

Response to applicant's argument is as follows.

A. Applicant argued that prior art did not disclose, "an interface controller that comprises a first arbitration element to arbitrate among a plurality of streams of different speeds to store data in a memory, where the first arbitration element includes a number of first entries, one of the first entries indicates which of the streams is to be serviced in a particular first time slot, and the streams are assigned to the first entries based on the speeds of the streams".



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As to applicant's argument Zhang disclosed the system comprises means for receiving a first compressed bitstream including first video data a second compressed bitstream including second video data. The system also comprises means for obtaining bit rate information from the first compressed bitstream, the bit rate information describing the bit rate of the first video data. The system further comprises means for scheduling the first compressed bit stream including the first video data and the second compressed bitstream including the second video data using the bit rate information to provide a compressed bitstream comprising the first video data and the second video data (col. 5, lines 52-64).

B. Applicant argued that prior art did not disclose a dispatch unit that comprises a second arbitration element to arbitrate among the streams to read the data from the memory, where the second arbitration element includes a number of second entries, one of the second entries indicates which of the streams is to be serviced in a particular second time slot, and the streams are assigned to the second entries based on the speeds of the streams".

As to applicant's argument Zhang disclosed the scheduler then schedules the first compressed bitstream including the first video data and the second compressed bitstream including the first video data and the second bit stream including the second video data using the bit rate information to provide a compressed bit stream comprising the first video data and the second video data (col. 27, lines 41-46).

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C. Applicant argued that prior art did not disclose a plurality of memory buckets corresponding to the plurality of streams of different speeds.

As to applicant's argument Zhang disclosed, knowing compression related bit rate information ahead of time can be used to improve the scheduling and multiplexing efficiency of compressed of bit streams including video data and thus improve transmission efficiency of compressed video data and thus improve transmission efficiency of compressed video data thus improve transmission efficiency of compressed video data over communication channels at bit rate that comply with the available bandwidth of the channels (col. 4, lines 34-41).

D. Applicant argued that prior art did not disclose that each of the streams has an associated watermark for performing flow control on the data in a the memory.

As to applicant's argument Zhang disclosed in a sense GOP forms a self-contained coded picture group that can be decoded by a decoder in a self contained manner (col. 25, lines 40-44).

E. Applicant argued that Zhang did not disclose, "A dispatch unit comprising a second arbitration element to arbitrate among the streams of variable speeds to read data from the memory".

As to applicant's argument Zhang disclosed, "the objective of the rate controller is to determine whether to apply more aggressive transcoding and bit rate conversion to a particular compressed

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bitstream and use the saved bandwidth resulting therefrom for a different compressed bitstream (col. 21, lines 58-62).

### *Conclusion*

27. Any inquiry concerning this communication or earlier communication from the examiner should be directed to Adnan Mirza whose telephone number is (571)-272-3885.

28. The examiner can normally be reached on Monday to Friday during normal business hours. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Cardone can be reached on (571)-272-3933. The fax for this group is (703)-746-7239. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

29. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

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system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at (866)-217-9197 (toll-free).

*Am*

Adnan Mirza

Examiner

  
JASON CARDONE  
SUPERVISORY PATENT EXAMINER